SEQUENCE LISTING

<110> University Court of The University of Dundee

Smith, Gillian

Ibbotson, Sally H

Wolf, Charles R

<120> CYP2S1 AS TARGET FOR DIAGNOSIS AND THERAPY OF SKIN DISEASES

<130> 03981/0203467-US0

<140> 10/552,610
<141> 2005-10-04

<150> PCT/GB2004/001453
<151> 2004-04-05

<150> GB0307914.2
<151> 2003-04-05

<160> 10

<170> PatentIn version 3.1

<210> 1
<211> 18
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer

<400> 1
cgatgccttc ctgctgaa   18

<210> 2

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 2
gcatgttctt gttggtgaat tctg   24

<210> 3

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 3
tggcacagga ggaacaaaac ccagg   25

<210> 4

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 4
cctgcaggcc cgctacta   18

<210> 5

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 5
ttggtctcgt actccacaac ca   22

<210> 6

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 6
tcctccaagg tccacccccaa ctctgt   26

<210> 7

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 7
ccgtatttcc tgcgcttcat   20

<210> 8

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 8
ttccccttct ttggggaaac   20

<210> 9

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 9
caggaacttc ctccgctgca gtaccat   27

<210> 10

<211> 10000

<212> DNA

<213> Human

<400> 10
aaaggatggg gtgaggtgat ggggtgagga tgtaggataa tgggacagga tgagcagtgg   60

gatgagggga tggaatgaag gactggataa gggataggtg ggggtaaatg agagcatggg   120

ggaggcagtg ctctcctgat ggtggggtgc acgagtggat ggatgacagg ataaataggg   180

aagggaggag ggataggatg acgagacggc tgtagaagcc cagagcagag aacattgctg   240

ctttgggggtc gatgatgtaa tcacctcaac tcactgacac tattcccagc cacggatgat   300

gctcacagaa tctggggaag tccaaggcct ggaagcagga ctcatcttgg acttcccctt   360

ctatctagtt ccaggtgctg aatgaggcac ctctgaagaa gagaaaggag agagactaag   420

ataaacaaga ctgagaggaa aaaatcagag tgggcaggca gagtgagcct ggtaaagtgg   480

accacagagc agacaggctg tggcttagcc ttggacagca ggtggggttc cagagccata   540

tgcttggagg agccttagca aactaaatcc cccagcagtt tcttaaaccc atccatcaca   600

cagcttgcca gaaccctggg gttggcagct tccagaatgg ttaggaaaat ccacagtagt   660

ggtcaggcgc ggtggctcat gcctgtaatc ccagcactta gggaagccaa ggcaggcgga   720

tcactaggtc aggagatcga aaccatactg gttaacacgg tgaaacccccg tctctactaa   780

aaatacaaaa aattagctgg gcatggtggc atgcgcctgt aatcccagct actcgggagg   840

ctggggcagg agaatcactt gaacccggga ggcagatatt gcagtgagcc gagatcgcgc   900

cattgcactc cacctgggca acagagcgag actccgtctc aaaaaaaaaa aaagaaagaa   960

agaaaaagaa aatccacagt aggggggccag acacaaaaat gatcactcca gcactgtcca   1020

```
gcccagatca gagggtttct gatgggaagt agctggggtc agggcaagga gtggtggaaa    1080

aagtcaggct gttttcagct gaactataca aatgggcatc tcctggccca gggtgggggat    1140

ttggcattgc agaaaggcca gaatccacct ggaatcactc agttactgtg aaatctatct    1200

tgggaaccta agaatgtttg ctttctagac ttgagaattt tggacacttg attgctttct    1260

ggatgaattt tagagattta taaattgtat tgaaagtgtt tattcgacaa gatgtttatt    1320

gagcatccac agtgtgttag gcactgggga tacagcaaca cacaaaacag acagagaatc    1380

ggcccttatg gagagaccat ttcagtggga aaagggagta taaaaaagca aatcaaggtc    1440

gggagcagtg gctcccacca gtaatcccag aactttggga ggccgaggca ggtggatcgc    1500

ttgagccctg ggcaacatag ctaaaccctg tctctacaaa aaattagcca ggcatggagc    1560

gcgtacctgt agtcccagct actcaggagg tcgaggcagg aggatcgctg acatctgtga    1620

ggcagaggct tcagtgagca gagatcacac tactgcactc cagcttaggc aacagagcaa    1680

aactctgtct ttaaaaaaaa aaaaaagtag gccgggcagg gccgggccca gtggctcatg    1740

cctgtaatac cagaactttg ggaggccaag gtgggtggat cacttgagtg aggtcagaag    1800

ttcaagacca gcctggccaa catggtgaaa ccctgtctct actaaaaata caaaaattag    1860

ctaggcatgg tgtcacatgc ctgtagtccc agctactcag gaagctgagg caggagtatc    1920

acttgaatcc aggaggcaga ggttgcagtg aacggagatc acaccactgc actccagcct    1980

gggcaacaag tgtgagactc catctcaaaa aagaaagtga atcaatatat aaaatataaa    2040

aagacaaaaa ataatacacg ttggcaatga tgtggaggaa aggaaacata ccctgttggt    2100

gagaatgtaa attagtccag ccactatgag aaacagtatg gaaatttctc aaaaaactat    2160

cataagggct gggtgcggtg gctcacgcct gtaatcccag cactttggga ggccgaggtg    2220

ggtggatcac aaggtcagga gatccagacc atcctggcta acacggtgaa accccgtctc    2280

tactaaaaat acaaaaaaaa aaaaaaatta gctggccatg gcggcgggca cctgtagtcc    2340

cagctactca gaaggctgag gcaggagaat ggcgtgaacc caggaggcga agcttgcagt    2400

gagccgagat ggcaccactg cactccagca tgggcgacag agcaagactc catctcaaaa    2460

aacaaacaaa aaacaatcat atgatccagc aatcccacta ctgggaattt atggaaagga    2520

aaagaaatca gtgtatcaaa gggatagcta cacagcaatg tttattacag cactattcac    2580

aatagcaaag atatggaatc aacctaaatg tccatcaaca gatgaatgga taaagaatat    2640

gtggtacatc tacacaatgg aaaactattt ggccgttaga aaaagaataa aatcctgtca    2700

tttgcagcaa catgtgaaac tgtctgtccc tacagggttg acaagaactg caagccaggt    2760

tctagataga aatataatta agcattggct gggcacagtg gctcacacct gtaatcccag    2820

cactttgcga ggccgaggtg ggcagatcac ttgagggcag gtgttcgaga ccagcctggc    2880
```

```
caacatggtg aaaccctgtc tctactaaaa atacaaaaag tagctgggtg tgatggcagg    2940

tgcctgtaat ctcagctact tgggaggcct aggcagaatt gcttgaaccc gggaggcaga    3000

ggttgcagtg agccgagatc atgccattgc actcccagct tgggtgacag agtgagactc    3060

aaaaaaaaaa aaaaaaaaga aaaagaaaga aagaaagaaa attaagcatt aatcatgctg    3120

cactttggtc cacttccttg ttgctgaaag ccacatagct ctagatgctg accatttgta    3180

tccccattgt tcttatagac agcatcgctg accttagaat catgatgttt ttgttaagga    3240

tcacgtcaga tgttttttgg acccccaatt ccagccacca gtttgaagac ccctacagag    3300

gatggggatt gtcaggcctc tgagcccaag ctaagccatc acatcccctg tgacctgcac    3360

gtatacatct agatggcctg aagtaactga agaatcacaa aagaagtgaa aatggcctgt    3420

tcctgcctta actgatgaca ttaccttgtg aaattccttc tcctggctca tcctggctca    3480

aaagctcccc ggctgaacac cttgtgaccc ccacccctgc cagccagaga acaaccccct    3540

ttgactgtaa ttttccacta cctacccaaa tcctataaaa cggccccacc cctatctccc    3600

ttcactgact ctttttggac tcagcccgcc tgcacccagg tgaaataaac agccttgttg    3660

ctcacacaaa gcctgtttgg tggtctcttc acacggacgc gagtgaaagg gatcagcatg    3720

agactataac ttcttcttcc accctctgtc ccgtgacttc actctgcact cttcaaccaa    3780

tcaacgatct ccacccttca gcccactcca aaaccttga acaccctagc cccaaactct     3840

taggggagat ggatgtgagg tttcccccca tctcctcatt cagtgaccct acaattaaac    3900

ctgcttctct gctgcaaacc agttataact gtagtaggct cattgcccag tgcacacagc    3960

aaatcaacag gagacactgg gttgcaggag agaagaggtt tcatcgtagg gtcgccaaaa    4020

gagatgagga gttgaagaat gtagggtgaa gtcacgggac agggagatga agaagccaca    4080

ttctcatgct gatcccattc cccagtgggt agccttcaca ctggttgctg gaattcaagg    4140

tctgaaaagc atctttttac attttgttt atgtatttat tattattatt attattatta    4200

ttattattat tattattatt gagatggagt ctcactctgt ctcccaggtt ggagtatagt    4260

ggtacaatct cggctcactg caacctctgc ctcctgggtt caagcaattc tcctgtctca    4320

gcctcctgag tagctgggat tacaggtgtg aaccacctcc ccccaccacc tccactccgc    4380

taatgtcctt tgtattttta gtagagatag ggtttcacca tgttgactgg gttgatcttg    4440

aagtcctgac ctcaagtgac ctacccacct cagcctccca aagtgttggg attatgggtg    4500

tgagccaccg tgcctggccc tgaaaagcat cttaagtgat tctttcttta acaaaagcct    4560

tatgactcta atatcagaga ttctgtctat aggaacaatg ggggtgcaca tggtcagtat    4620

ctagctctac ctgagtttta gcaacaagga aatggaccaa agtgcagccc gaataacact    4680

taattataag tatgtttctg tccagaaccc agcatgcaat tcttgtcagc cctgtgggaa    4740

tggtttcaca gtgtctcgat atactgactt gctgtgtgca ttgggcaaca aacctattac    4800
```

```
aattacacat ggatgtaact ggaggtcatt acattaattg aaataagcca ggcacagaaa    4860

gataaacaat gcatgttctt actcccaagt ggaagctaaa aaagttgatc acatggaggt    4920

agagaatgga atgatggata ctagagactg ggaaaggcgt atgggtgggg tggggtgggg    4980

agagaggttg gttaatacac ctagacagaa ggaataagtt cccttttttt ttgagacgga    5040

gtctcactct gttgcccagg ctggaaggca gtggcacaat ctcagctcac tgcaacctct    5100

gcctcttggg ttcaagcaat cctcctgcct cagcctccag agtagctgcg attacaggca    5160

cgtgccacca taaccggcta attttttttt tttttcaga cggagtctca ctctgtcacc    5220

caggctggag tgcagtggca caatctcagc tcactgcaag ctccacctcc caggttcacg    5280

ccattctcct gcctcagcct gccgagtagc tgggactata gacgcctgac accacgcccg    5340

gctaattttt tgtattttta gtagagatgg ggtttcaccg cgttagccag gatggtcttg    5400

atctcctgac ctcgtgatct gcccgtctcg gcctcccaaa gtgctgggat tacaggcgtg    5460

agccaccacg cccggcaaga acttttaagt tttcttatct ataggatgtt gcaatcatca    5520

tctttaaaca ttagacatgg aatctttata ataatcttgc catatatata tatatatata    5580

tatttttttt tttttttttt tttttttttt gacactgagt ctcactttat cgcccaggct    5640

ggagtacagt ggcacaatct tggctcacta caacctccac ctcctgggtt caagtgattc    5700

tcctgcctca gccaccccag tggctgggga ctacaggcgt gcaccaccac atccagttaa    5760

tttttttttt tttttgaga cggagtctcg ttctgtcgcc caggctagag ttcagtgggg    5820

agatctcagc tcactgaaac ctccgccttg tgggttcaag caagcaattc tctgccacag    5880

cctcccgact agctgggatt agaagtgccc accaccacgt ctggctaatt tttgtatttt    5940

tagtagagac ggggtttcat catcttggcc agactggtct tgaactcctg accccgtgat    6000

ccacccacct cggtctccca aagtactggg attacaggcg tgagccactg cgcctggccg    6060

gttaattttt atattttcag tagagacagg atttcaccac gctggctagg ctggtctcaa    6120

actcctgacc tcaggtgatc cacccgcctt ggccactgtg cctggtcaac agtctttcta    6180

tttttattct aggctggaga cctttgtctc aaaaacaaaa cgagaatgct ccctggagtc    6240

tgtactgatc cctcttccct cccaccgtag attagttttc tccttgcatt taaaaagacc    6300

tttctggctg gcatccagtg aatgaattgt ggaggagggg gagaaggaga gaggaagcag    6360

gtagctcagt ggggaagcta ctgcaaaatc ctggcaagca atgacagtac cttgaatcag    6420

ggctggtgtc agttggatca gggtggtagg gaaaggagga aatggataaa tttggaatgt    6480

atttggaggt agagccagca ggatttgctg acaaactggg tttaaagtca aagagagaaa    6540

tcaaggttaa acctgacaaa taaaaacaga tgtggtctca ggcgagtaga gacattatgc    6600

agaaagacta ttgcatcagg gggaaagatg gctgtaaaaa caatgaacaa gaccagaatc    6660
```

```
tgataaccca gaaggatgtg ttgtctaatg aaactaattt tttcccctcc tcctattttt    6720

tttttgagac ggagtttcac tcttgttgcc caagctggag tgcaatggcg cgatctcggc    6780

tcactgcaac ctccgcctcc cggattcaag cgattctcct gcctcagcct ccctgagtag    6840

ctgggattac aggcatgcac caccacacct ggctaatttt gtatttttag tagagacggg    6900

gtttcaccat gttggccagg ctggtctcaa actcctgacc tcaggtgatc tgcccacctc    6960

agcctcccaa agtactggga ttgcaggcat gagacaccgc gcccggcctc tcctatattt    7020

tgttgtcatc agcaagtgaa aagatggtga taccttttac agaggtaagg aaggaggtga    7080

gagaaagtat tcccagatgg ggtgggaagc tggtacagcc cactttgcag gaggtggggg    7140

aatcgggaat tcttttatat ccatgaagtt tgagatgtct gttagctctc ccaggggtag    7200

aacagaggga gcagataggc tcaaggttgg atttggaacg tcctagaaac cttccagaac    7260

aaggcaaagg aggaactgag aactggcatt tacttcatag caagagcgta tgagcctccc    7320

cacccctcct cctttggctt cagggcaccc ctggaatgtt agaggctaga atcaatgcta    7380

aagaagacca cagtcaagga ttccccagac tccagggagc actctggcta tgctcttgag    7440

agaaagggct ctggactaga atacaaattg caagattgca ggccgggggc agtggctcat    7500

gcctgtaatc ccagcactgt gggaggccga ggtgggtaaa ttgcctgagg tcaggaggtc    7560

gagaccagcc tggccaacat ggtgaaaccc caactctact aaaaatacaa aagttagctg    7620

ggagtggtgg tgggcgcttg taatcccagc tactcaggag gctgaggcag gagaatcaca    7680

tgaacccagg aggcagagat tgcagtgagc caagatcgtg ccactgcact ccagcctggg    7740

caacagagcg agaccctgtc tcaaaaaaag attgtgaaaa ttctaagaat ctaatttttt    7800

tttttttttt tttttttttg agacggagtc tcgctctgtc gcccaggctg gagtgcagtg    7860

gcgggatctc ggctcactgc aagctccgcc tcccgggttc acgccattct cctgcctcag    7920

cctcccaagt agctgggact acaggcgccc gccactacgc ccggctaatt ttttgtattt    7980

ttagtagaga cggggtttca ccattttagc caggatggtc tcgatctcct gacctcgtga    8040

tccgcccgcc tcagcctccc aaagaatcta atattttaaa actccagcat atgcaactca    8100

aagctcatct aattatacac ttaagagtta tgtatttcat tgtatataag ataccttgag    8160

gaacaaaaag tatctgtaaa caaatactga gctctagcta ctgatatgca tgctgatgta    8220

tttgggagtg aagtgtactg gtatctgcaa ctgactttga aatgcttaaa aaaaaatcaa    8280

tggataggca aaatgaacag atatgtaatg aaaaaagggc caggcacagt ggctcatgcc    8340

tgtaatccca gcactttggg aggctgaggt gagaagatca cctgaggtca ggagtttgag    8400

accagcctgg tcaacatggc aaaaaccccg tctctactaa aaatacaaaa aatagccagg    8460

catggtggtg cacgcctgta atcgcagcta cttgagaggc tgaagcagga gaattgcttg    8520

aacccgggag gcagaggttg caatgagcca agactgtatg ctattgcact ccactctggg    8580
```

```
caacagagtg agactctatc tcaaacaaaa aaagaataga taggtaacaa agaaaggata   8640

ataaaatggt ggaatctgat gggtatacag gtgttcactg tatgtttgaa attttaatat   8700

ttttataata aaatacgaaa tcaaaatgca aagcaaacaa agtaactgcc ctgctgaaaa   8760

cccctccaga cagcttccgt ttgcaataga aataaaatgc agtcttttcc aagaccttgc   8820

aagatggccc ctgcagactt catgaatctt atctcctaca ttcaatcttt gaaaatataa   8880

caaatattta ttgagtgcct actgtgtgtc aggcactgca ctatatgttg gggatacagc   8940

agtgaaccaa acctacaata attcatgcac aaatggttct aacattcttc cttctcaaga   9000

agcccattcc cctggcaggc cttctcactt cctgaaattg ttttcatctc atcttcatct   9060

gcatgtggat atgagctcag gaaggccaga gcccttctct ccatcgctca tagctgcacc   9120

ctcgggtcta gaacaaggtc ttgtttatag taagacctca ataacagtta gttgcagaaa   9180

tattagctaa catctattta gtgcttgtta catgtgcacc tgcgtctgct ttaaatggtg   9240

tgcacagatg tactatttaa tcctgaaaac tagccccatt ttacaaggct aacagaggca   9300

cagaggaatt aggctgtgaa ttcaagcagt ctggcttcag ccatcacggt cctaaccgct   9360

ctgcaaactg cctctaaacg aatgaatgaa tgactcaatc attctaactg gcccaagtca   9420

aaatattaac tctgccactc agccaagttg acctggggcc aaccgattta tctccctgga   9480

cttcagattg tttatcctta aaggtcaagt ccttcctctc agttcgtgaa gatgtaagat   9540

gctggagaaa attgactcaa agacacccca tacgcacg cacacaggaa cccacatccg   9600

aacaatgagc gaggtaggag ctggggagag tggcgcgggg tcaccgccag atgcggggtg   9660

tggcaacctc caggcggcca aagtctctga cttccaggtt cttctgtttg cttactccct   9720

atccgggggc ccaaggcgct gtctccgccg cccaagcccc gcgtaaacct gggtgacctc   9780

ggagacatcc gttggagcat gagttcccga catcaggcgg cggcggtggt ccgggagaaa   9840

cccggcggcg gggagataag cctgcccagg aggcagggg ctgggctagc tgccccgccc   9900

cgcgcctgac ttcgttgggg agggagacgc ccggctcccg cccctaacta gcccagccgc   9960

gcggagcgcc tgggagagga gaaggagccg acctgccgag                          10000
```